

Remarks

Reconsideration of the application, and allowance of all claims are respectfully requested in view of the amendments and remarks below. Claims 7, 9-12, 22-24, 29, 31-34, 44-46, 48, 49, 54, 56-59 & 69-71 remain pending.

By this amendment, claims 1, 4-6, 8, 13-21, 25-28, 30, 35-43, 47, 50-53, 55 & 60-68 are canceled without prejudice, and claims 7, 9-12, 22, 24, 29, 31-34, 44, 46, 48, 49, 54, 56-59, 69 & 71 are amended to more particularly point out and distinctly claim the subject matter of the present invention. These amendments to the claims constitute a bona fide attempt by applicants to advance prosecution of the application and are in no way meant to acquiesce to the substance of the rejections contained in the Office Action of October 2, 2003. Support for the amended claim language can be found throughout the application, for example, reference the examples provided on pages 35-48 of the specification.

Substantively, prior claims 1, 4, 20, 25-26, 42, 47, 50-51 and 57 were rejected under 35 U.S.C. §102(e) as being anticipated by Short et al. (U.S. Patent No. 6,178,529 B1). This rejection is believed to be moot in view of the cancellation of claims 1, 4, 20, 25-26, 42, 47 & 50-51, and the amendment of claim 57 to depend from claim 69. Withdrawal of this rejection is therefore respectfully requested.

In addition, the subject matter of prior claims 5-19, 21-234, 27-41, 43-46, 48-49, 52-56 & 58-71 was rejected under 35 U.S.C. §103(a) as being unpatentable over Short et al. in view of Trottier et al. (U.S. Patent No. 4,851,988 A). This rejection is respectfully, but most strenuously, traversed to any extent deemed applicable to the claims presented herewith, and reconsideration thereof is requested.

An “obviousness” determination requires an evaluation of whether the prior art taken as a whole would suggest the claimed invention taken as a whole to one of ordinary skill in the art. In evaluating claimed subject matter as a whole, the Federal Circuit has expressly mandated that functional claim language be considered in evaluating a claim relative to the prior art. Applicants respectfully submit that the application of these standards to the independent claims presented herewith leads to the conclusion that the recited subject matter

would not have been obvious to one of ordinary skill in the art based upon the Short et al. and Trottier et al. patents.

As recited in claim 22, for example, applicants' invention comprises a method of managing identifiers of components of a distributed computing environment. This method includes providing, by an operating system instance of the distributed computing environment, a unique identifier of a component of the distributed computing environment to a cluster of the distributed computing environment. Thereafter, the cluster stores the unique identifier in local storage and global storage, thereby providing a local unique identifier copy and a global unique identifier copy. The method then includes regenerating the unique identifier in response to a cluster event (e.g., rejoining of an operating system instance to the cluster). The method further includes determining, in response to the cluster event, whether the regenerated unique identifier, the local unique identifier and the global unique identifier are in agreement, and, if not, performing an action responsive thereto.

In a related aspect, a method of managing identifiers of components of a distributed computing environment is provided which includes identifying a component of the distributed computing environment by a unique identifier, and a local copy of the unique identifier, and a global copy of the unique identifier; regenerating the unique identifier in response to a cluster event; and automatically updating, by a cluster of the distributed computing environment, one or more of the regenerated unique identifier, the local unique identifier copy and the global unique identifier copy, to provide consistency among the regenerated unique identifier, the local unique identifier copy and the global unique identifier copy, in response to the cluster event.

Applicants respectfully submit that there are numerous differences between their recited methods and the teachings, suggestions and implications provided by Short et al. and Trottier et al.

Short et al. describe a method and system for resource monitoring of disparate resources in a server cluster. The Office Action analogizes applicants' recited functionality of claim 22 with the teachings of Short et al. at column 2, lines 51-56. This analogy is believed to be in error. Applicants describe in their process: providing, by an operating

system instance of the distributed computing environment, a unique identifier of a component of the distributed computing environment to a cluster of the distributed computing environment. This unique identifier is then stored in local storage and in global storage, thus providing a local unique identifier and a global unique identifier. In applicants' approach, there are three copies of the identifier, i.e., the unique identifier (or regenerated unique identifier), the local unique identifier and the global unique identifier. A careful reading of Short et al. fails to uncover any similar discussion of a process for providing three copies of an identifier to identify a component of a cluster of a distributed computing environment, let alone the particular three identifiers set forth in applicants' independent claims.

Column 2, lines 51-56 of Short et al. state:

“The invention may also be practiced in distributing computing environments where tasks are performed by remote processing devices that are linked through a communications network. In a distributed computing environment, program modules may be located in both local and remote memory storage devices.”

Applicants respectfully submit that the above-cited language from Short et al. does not teach storing by a cluster a unique identifier in local storage and global storage to provide a local unique identifier and a global unique identifier. The language refers to program modules that may be stored in either local or remote memory storage devices, but does not teach or suggest the functionality recited by applicants in the independent claims presented.

Applicants' independent claims further characterize the recited invention as including regenerating a copy of the unique identifier in response to a cluster event. For example, in response to a node rejoining the cluster, the unique identifier is obtained (i.e., regenerated) during the bootstrap process. This re-obtained copy of the unique identifier (referred to herein as a regenerated unique identifier) is then used during a determining step which includes, in response to the cluster event, comparing the regenerated unique identifier, the local unique identifier and the global unique identifier to determine whether all three are in agreement. There is simply no similar concept in Short et al. of generating a unique identifier for a component of a cluster, then storing that unique identifier locally and globally,

and thereafter, regenerating the unique identifier in response to a cluster event and comparing three unique identifiers, that is, the regenerated unique identifier, the local unique identifier and the global unique identifier to determine whether all the identifiers are in agreement.

The Office Action recognizes that Short et al. do not teach the existence of a global identifier. In this regard, the Office Action references the teachings of Trottier et al. as being relevant to applicants' method. However, applicants respectfully submit that even if the global identifiers described by Trottier et al. are analogized to applicants' recited global unique identifier copy for a particular component of a cluster of a distributed computing environment, as proposed in the Office Action, the resultant combined method would still not teach, suggest or imply all of the functional characterizations of applicants' invention as recited in independent claims 22 and 24, and as discussed above.

To summarize, applicants' independent claims presented herewith are believed to recite functionality which distinguishes their process from the teachings and suggestions of Short et al. and Trottier et al., either alone or in combination. Neither patent teaches the existence of three copies of an identifier, that is, the unique identifier (or regenerated unique identifier), the local unique identifier copy and the global unique identifier copy. Further, neither patent teaches or suggests providing a regenerated copy of the unique identifier in response to a cluster event. Further, neither patent teaches or suggests determining whether all three identifiers for a component of a cluster are in agreement, nor the taking of an action based upon such determination.

Further, in certain independent claims, for example, claim 24, applicants recite automatically updating, by a cluster of the distributed computing environment, one or more of the regenerated unique identifier, the local unique identifier copy and the global unique identifier copy, to provide consistency among the regenerated identifiers in response to a cluster event. This step of automatically updating is believed to be a clear departure from the teachings of the known art. Applicants respectfully submit that the authentication sequence referenced in Short et al. in the Office Action does not equate to the functionality recited by applicants in the independent claims at issue. Applicants are automatically managing content of identifiers and changing that content as appropriate depending upon changes to the cluster

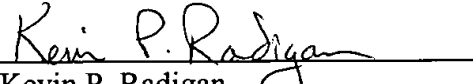
of the distributed computing environment. The authentication described by Short et al. does not teach, suggest or imply applicants' recited concept of automatically updating one or more of the identifiers to provide consistency among the identifiers.

For all of the above reasons, applicants respectfully request reconsideration and withdrawal of the obviousness rejection stated in the Office Action, i.e., to any extent deemed applicable to the claims presented. The dependent claims are believed allowable for the same reasons as the independent claims from which they directly or ultimately depend, as well as for their own additional characterizations.

All pending claims are believed to be in condition for allowance and such action is respectfully requested.

Should the Examiner wish to discuss this case with applicants' attorney, the Examiner is invited to contact applicants' representative at the below-listed number.

Respectfully submitted,


Kevin P. Radigan
Attorney for Applicants
Registration No.: 31,789

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HESLIN ROTHENBERG FARLEY & MESITI P.C.
5 Columbia Circle
Albany, New York 12203-5160
Telephone: (518) 452-5600
Facsimile: (518) 452-5579